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EXAMINER	
HOYE, MICHAEL W	

ART UNIT	PAPER NUMBER
2614	16

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/390,090	LEVESQUE ET AL.	
	Examiner	Art Unit	
	Michael W. Hoye	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-11,14-16 and 18-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-11,14-16 and 18-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 September 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see Amendment, filed 11/28/03, with respect to the rejection(s)of claims 1-5, 7-8, 10-11, 16, 18-19 and 21-24 under 35 U.S.C. 102(b) as being anticipated by Russo et al (USPN 5,701,383) and claims 9, 14-15 and 20 under 35 U.S.C. 103(a) as being unpatentable over Russo et al have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the O'Connor (USPN 6,480,667), Yonemitsu et al (USPN 5,510,840), and Russo et al references as cited in the rejection of the claims given below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5, 7-10, 15-16, 18-19, 21 and 23-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor (USPN 6,480,667), in view of Yonemitsu et al (USPN 5,510,840), both cited by the Examiner.

As to claim 1, note the O'Connor reference which discloses a time-shifted video method. The claimed buffering an input signal having a digital video format is met by buffering an input video stream prior to storage (col. 3, lines 37-38), where the video stream may be in digital form

(col. 2, lines 11-12). The claimed compressing is met by compression 104 (Fig. 1, col. 2, lines 16-17 and col. 3, lines 37-38). It is inherent that buffering and compressing occur substantially simultaneously because of the speed at which the processing occurs within the processor or components. The O'Connor reference does not explicitly disclose that the input signal is buffered then compressed. However, the Yonemitsu et al reference specifically discloses this teaching as shown in Fig. 23, where buffering (buffer memory 18) occurs just prior to the compression stage (elements receiving the contents of buffer memory 18), as shown in Fig. 23, in order to properly perform the encoding or compression of the input video signal comprised of picture data of a picture (field or frame), which includes motion prediction and other processes (see col. 13, lines 18-47). Therefore, it would have been obvious to one of ordinary skill in the art of video processing and compression to have combined the O'Connor reference, which teaches compression prior to storage, with the teachings of Yonemitsu et al, which teaches buffering the input signal prior to the compression stage, for the advantage of storing picture or frame data in a buffer memory in order to perform the necessary encoding or compression operations, such as detecting a motion vector for motion prediction. One of ordinary skill in the art would have been led to make such a modification since buffering an input signal prior to the compression stage is well known in the art of video compression as described above. The claimed real-time mode, delivering a plurality of real-time video frames along a first processing path to an output for display in response to said input signal is met in the O'Connor reference by the processing path from Video In 102, along Bypass 142, to Video Out 120 in Fig. 1 (col. 4, lines 54-57), where the "live" broadcast or incoming video stream is delivered to the video output 120. The claimed time-shifted mode, delivering a plurality of time-shifted video frames

along a second processing path to said output for display...is met by the O'Connor reference, where the video input signal 102 (Fig. 1) is sent along the compression 104, buffer 106/storage 108, 122 units, decompression 110 and on to the video out 120 (see col. 2, line 54 – col. 3, line 2, as well as Fig. 2). The claimed said time-shifted video frames being delayed relative to said real-time video frames is met by retrieving a portion of the video stream from the storage unit while the recording of the incoming video stream continues, whereby the retrieved portion of the video stream is time-shifted from the incoming video stream by a time delay (col. 2, lines 62-64 and col. 5, lines 2-19). The claimed pausing at a particular one of said real-time frames during a transition from said real-time mode to said time-shifted mode is met by the VIDEO OUT providing a still image at the VIDEO OUT when the user signals a command from the remote control to suspend the display of the incoming video stream (see col. 4, line 65 – col. 5, line 19).

As to claim 2, the claimed said transition is between said particular real-time frame and a time-shifted version of said particular real-time frame is met by the O'Connor reference, which discloses a user signaling the record and playback system 100 to suspend the display of the incoming or real-time video stream, wherein the VIDEO OUT provides a still image of the image present at the VIDEO OUT when the user signals a command from the remote control to suspend the display of the incoming video stream (see col. 4, line 65 – col. 5, line 19).

As to claim 3, O'Connor discloses various user commands or trick functions including "suspend" or pause, "un-suspend" or resume, "fast forward" and "rewind" which may be used during the time-shifted mode or delayed mode (see col. 4, line 65 – col. 5, line 53).

As to claim 4, O'Connor discloses as previously described above that the claimed transition mode is triggered by a command of a viewer (see col. 4, line 65 – col. 5, line 19).

As to claims 5 and 7, O'Connor discloses that the real-time video frames (or video stream – received at VIDEO IN 102) may be derived from analog NTSC (uncompressed) video signals, digital, or digital compressed signals such as MPEG (col. 2, lines 5-20).

As to claim 8, the O'Connor reference discloses that the real-time video steam is decoded in the VIDEO IN 102 (Fig. 1, col. 2, lines 6-19). Although, the O'Connor reference does not explicitly disclose that the real-time video frames are provided from a decoder that decompresses said input signal, O'Connor does disclose in one embodiment that the real-time video signal is already a MPEG2 video signal (see claim 7), and it is inherent that a decoder which decompresses the video signal would have to be used in order to provide a viewable video output to the user.

As to claim 9, the O'Connor reference discloses that a processor 130 controls the operations of the video record and playback system 100 (i.e. the real-time mode, the time-shifted mode, and the transition), and the compression and decompression functions of units 104 and 110 may be performed by the processor 130 as well (col. 2, lines 45-52).

As to claim 10, O'Connor discloses that the input signal comprises MPEG video as described above in claim 7.

As to claim 24, O'Connor discloses that the transition is seamless to a viewer by pausing a frame of the video stream when the user signals a suspend or pause command to the video record and playback system 100 via a remote control, and when the user signals the video record and playback system 100 to un-suspend the video stream, it will play back at the point at which the video stream was suspended, where the video stream is time shifted by the amount of time that he suspended the incoming video stream, or the user may perform addition functions, such

as fast forward or rewind through the time-shifted video stream (col. 5, lines 2-19). The pausing of the video stream provides a smooth or seamless transition from the real-time video stream to the time-shifted video stream, as opposed to displaying a snowy screen, black or blue frames, or even intermittent video frames during the transition.

As to claim 25, the claimed transition is triggered by an event generated by software is met by the O'Connor reference where the user signals to the video record and playback system 100 to suspend the display of the incoming video stream and the firmware 140 (software within processor 130) controls the operations of the video record and playback system 100 to the suspending or pausing of a video frame and a transition to the time-shifted mode when a un-suspend or resume command is received (col. 2, lines 45-52 and col. 5, lines 2-18).

As to claim 21, note the O'Connor reference which discloses a video record and playback apparatus 100 (Fig. 1) for time-shifting a real-time video stream. The claimed input for receiving a video signal in an uncompressed format is met by VIDEO IN 102 (Fig. 1), which receives and decodes the real-time video stream, including an uncompressed format (col. 2, lines 6-19), and generates real-time output signal via BYPASS 142 (Fig. 1), as well as to the compression 104 and buffering/storage sections 106, 108 and 122. The O'Connor reference does not explicitly disclose a frame buffer directly connected to said input... However, the Yonemitsu et al reference specifically discloses this teaching as shown in Fig. 23, where buffering (18) occurs immediately after the signal input, in order to perform additional processing on the video signal before being output to the display. One of ordinary skill in the art would have used a buffer in order to pause a video output signal at a frame during transitions

between modes. O'Connor discloses a frame storage system directly connected to said input as shown in Fig. 1 by the compression and buffer/storage units 106 and 108 (col. 2, lines 16-30), which is configured to store the video signal separately from the real-time video bypass 142 as described above. The claimed time-shifted video decoder configured to generate a second output signal in response to said video signal stored in said frame storage system is met by decompression 110 and video out port 120 (col. 2, lines 20-37). The claimed controller configured to generate a command configured to control presenting the first output signal when in the first mode and a second output signal when in a second mode is met by processor 130 in the O'Connor reference, which controls operations of the video record and playback system including switching outputs between a real-time mode and a time-shifted mode (Fig. 1, col. 2, lines 45-53 and col. 4, line 65 – col. 5, line 19).

As to claim 16, the O'Connor reference discloses the claimed encoder (compression 104) and the time-shifted decoder (decompression 110) are provided in a single codec is met by the functions of units 104 and 110 may be performed by the processor 130 (see col. 2, lines 48-50).

As to claim 26, the O'Connor reference discloses compression 104, which is directly connected to Video IN 102 and configured to compress said video signal (col. 2, lines 16-17) and the claimed storage buffer is met by buffer unit 106 and storage unit 108, which buffers the video signal along the processing path between the encoder (compression 104) and the decoder (decompression 110) (col. 2, lines 20-34).

As to claim 23, note the O'Connor reference which discloses a video record and playback apparatus 100 (Fig. 1) for time-shifting a real-time video stream. O'Connor discloses an input

signal having a digital format (see VIDEO IN 102 in Fig. 1 and col. 2, lines 11-12), and a first signal is met by bypass 142 in Fig. 1. O'Connor discloses pausing the claimed first signal or real-time signal at a frame during a transition form a real-time mode to a time-shifted mode (see col. 4, line 65 – col. 5, line 19). The O'Connor reference does not explicitly disclose that a frame buffer generates the first signal... However, the Yonemitsu et al reference specifically discloses this teaching as shown in Fig. 23, where buffering (18) occurs immediately after the signal input, in order to perform additional processing on the video signal before being output to the display. One of ordinary skill in the art would have used a buffer in order to pause a video output signal at a frame during transitions between modes. O'Connor discloses a buffer unit 106 and other storage units 108 and 122 as shown in Fig. 1. O'Connor discloses an encoder as met by compression 104, which generates a second signal in response to the signal from video in 102 (Fig. 1), wherein said second signal is stored in buffer unit 106 and/or storage units 108 and 122 (col. 2, lines 20-30 & 38-44) and the signal is retrieved after being stored (col. 2, lines 31-37). The claimed switch configured to present an output signal comprising said first signal when in real-time mode and said second signal retrieved from said buffer when in said time-shifted mode is met by the processor 130 and more specifically video out 120 (see Fig. 1, col. 2, lines 45-53 and col. 4, line 65 – col. 5, line 19).

As to claim 15, the claimed first path for said real-time mode is met by the O'Connor reference along bypass 142 in Fig. 1 and the second processing path for said time shifted mode is from video in 102, through compression 104, into buffer unit 106 and/or storage units 108 and 122, through decompression 110 and out through video out 120 (Fig. 1).

As to claim 18, the O'Connor reference does not explicitly disclose that the apparatus comprises a set-top box. However, the examiner takes Official Notice that it is notoriously well known in the art of video distribution systems to use set-top boxes with recoding and playback features for the advantage of consolidating a recoding device into a cable or satellite set-top box apparatus, which reduce the number of parts a devices used to perform the same tasks. Therefore, it is submitted that it would have been clearly obvious to one of ordinary skill in the art at the time of the invention to have used a set-top box for the advantages given above.

As to claim 19, the O'Connor reference discloses that the output signal from video out 120 is viewable by a monitor or other display device (col. 2, lines 34-37). Although, O'Connor does not explicitly disclose an analog television, it would have been obvious to one of ordinary skill in the art to have used an analog television as a display device with the system disclosed by O'Connor since the system is a video record and playback device which may receive television signals, broadcast signals, cable, or satellite signals, including analog NTSC signals (col. 2, lines 6-8).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor, in view of Yonemitsu et al, in further view of Russo et al (USPN 5,701,383), all cited by the Examiner.

As to claim 11, the O'Connor reference discloses suspending or pausing a real-time video frame during a transition to a time-shifted mode as described above in claim 1. However, O'Connor does not give explicit detail as to information being stored identifying said particular real time video frame. Russo et al discloses a method in which a memory is used for storing

information relating to various points or frames in a program, so that at a specific point in a program when a "PAUSE command" (col. 3, lines 7-16 and col. 4, lines 15-27) is received, the system is automatically capable of commencing playback from that point or frame when a RESUME command is received or, in another embodiment, when a "MARK command" (col. 3, lines 46-49) is issued and used along with "Marker memory" (col. 8, line 20), where information regarding program markers is stored to specify a point or frame from which playback can be resumed. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to further include the teachings of Russo et al with O'Connor and Yonemitsu et al for the advantage of properly indexing and sequencing video frames in memory or storage for time-shifted mode queuing and to further provide smooth transitions when playback commences.

5. Claims 14, 20, 22 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Connor.

As to claim 20, note the O'Connor reference which discloses an apparatus for time-shifting a real-time video stream. The claimed real-time decoder configured to (i) generate a first output signal in response to a compressed digital video input signal is met by VIDEO IN 102 (Fig. 1), which receives and decodes the real-time video stream (col. 2, lines 6-19) and generates a real-time output signal via BYPASS 142 (Fig. 1). O'Connor discloses in one embodiment that the real-time video signal is already a MPEG2 video signal (see claim 7 and col. 2, lines 5-20). The claimed (ii) pause a frame of said first output signal during a transition from a first mode to a second mode is met by the VIDEO OUT providing a still image at the VIDEO OUT when the user signals a command from the remote control to suspend the display of the incoming video

stream (see col. 4, line 65 – col. 5, line 19). The claimed frame storage system configured to store said compressed digital video signal separately from said real-time decoder is met by the compressed digital video signal being sent from VIDEO IN 102 (Fig. 1) through the compression 104 to buffer 106 and/or storage 108 and 122 units (see col. 2, line 54 – col. 3, line 2, as well as Figs. 1 and 2). The claimed time-shifted decoder is met by the decompression unit 110 (Fig. 1), which is coupled to said frame storage system 106, 108 and 122, and the decompression unit 110 generates a second output signal to video out 120 in response to said compressed digital video signal stored in said frame storage system. The claimed controller configured to generate a command configured to control presenting (i) said first output signal when in said first mode and (ii) said second output signal when in said second mode is met by processor 130 (Fig. 1, col. 2, lines 45-53 and col. 4, line 65 – col. 5, line 19).

As to claim 22, note the O'Connor reference which discloses an apparatus for time-shifting a real-time video stream. The claimed controller configured to receive a first command and a video input signal in a compressed format is met by processor 130 (Fig. 1 and col. 2, lines 45-52), which may receive commands from a user via a remote control (col. 5, lines 2-5), and the processor 130 may also receive a video input signal in a compressed format (Fig. 1 and col. 2, lines 45-52). The claimed real-time decoder configured to (i) generate a first output signal in response to a decompressing a video input signal is met by VIDEO IN 102 (Fig. 1), which receives and decodes the real-time video stream (col. 2, lines 6-19) and generates a real-time output signal via BYPASS 142 (Fig. 1). O'Connor discloses in one embodiment that the real-time video signal is already a MPEG2 video signal (see claim 7 and col. 2, lines 5-20). The claimed (ii) pause a frame of said first output signal during a transition from a first mode to a

second mode is met by the VIDEO OUT providing a still image at the VIDEO OUT when the user signals a command from the remote control to suspend the display of the incoming video stream (see col. 4, line 65 – col. 5, line 19). The claimed frame storage system coupled to the controller to exchange said video input signal is met by the compression 104 and decompression 110 units as combined with the processor 130, which is coupled to the frame storage system 106 and 108 (see Fig. 1 and col. 2, lines 45-52). The claimed time shifted decoder is met by decompression 110, which is coupled to said controller (processor 130) as described above, and configured to generate a second output signal in response to the video input signal received from the controller and said first command is met by the decompression unit 110 generating a second output signal to video out 120 in response to said compressed digital video signal stored in said frame storage system and the first command received from the user as previously described above. The claimed controller is configured to generate a command configured to control presenting (i) said first output signal when in said first mode and (ii) said second output signal when in said second mode is met by processor 130 (Fig. 1, col. 2, lines 45-53 and col. 4, line 65 – col. 5, line 19).

As to claim 14, O'Connor does not disclose a real-time decoder and a time-shifted decoder that are provided in a single codec. However, the examiner takes Official Notice that it is notoriously well known in the art of interactive video distribution systems to integrate multiple components into a single component for the advantage of reducing manufacturing and component costs, as well as simplifying the hardware design. Therefore, it is submitted that it would have been clearly obvious to one of ordinary skill in the art at the time of the invention to

have provided the real-time decoder and time-shifted decoder in a single codec for the advantages given above.

As to claim 27, O'Connor does not explicitly disclose a demultiplexer configured to demultiplex said video input signal to said real-time decoder and said controller. However, the examiner takes Official Notice that it is notoriously well known in the art of interactive video distribution systems to incorporate the use of a demultiplexer to demultiplex video input signals for the advantage of allowing the apparatus to receive digital video signals which are normally transmitted in a multiplexed format, which allows for additional data capacity in the same amount of bandwidth. Therefore, it is submitted that it would have been clearly obvious to one of ordinary skill in the art at the time of the invention to have used a demultiplexer to demultiplex the input video signal in the apparatus for the advantages given above.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Iwamura (USPN 5,400,076) – Discloses a buffer as used prior to the compression stage.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael W. Hoye whose telephone number is (703) 305-6954. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached at (703) 305-4795.

Any response to this action should be mailed to:

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to customer service whose telephone number is **(703) 308-HELP**.

Michael W. Hoye
February 23, 2004

JOHN MILLER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600